

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
CENTRAL STATES FOREST EXPERIMENT STATION

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March 19, 1965

Dear Friend:

Our annual report for 1964 consists of an annotated list of the publications we issued during the year. Many of you have received those on the subjects you have expressed an interest in. But if you would like to receive copies of any of those listed, just write us. Those marked with an asterisk (*) are still available upon request. In addition, we are printing an annotated list of all our publications issued during the past 5 years, classified according to subject matter, which we would also be glad to send you upon request.

While we're at it, though, I would like to review briefly with you some of the interesting things that have been happening at the Station--news about our program, our people, and our plant. Since program changes affect both research personnel and facilities, let's talk about program first.

We are expanding the timber management research project at Berea, Kentucky, so as to concentrate our scientists in this research at Berea, where we have several other projects. This will permit us to provide more of the facilities necessary to do the job ahead of us in the Appalachian Plateau Region and to make more efficient use of the research funds available. In the past, part of this work was done at Athens, Ohio, and other parts at Berea; the office at Athens will be closed during 1965.

A new project, timber-related crops, has been started at Berea, Kentucky; it will serve the Appalachian area. The objective of this project is to develop ways of propagating decorative, medicinal, and edible plants associated with forests of the region and, thus, increase the income opportunities for forest-land owners.

Because of the increasingly critical black walnut situation in the Nation, we are stepping up our work on this species. Our research



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on walnut site, tree improvement, and silviculture is centered at Carbondale, Illinois, and that on walnut plantation establishment is concentrated at Ames, Iowa. Various phases of this program will be conducted throughout the Central States and in other parts of the natural range of black walnut. The American Walnut Manufacturers' Association, TVA, several universities and State forestry services, and others are cooperating in this program.

At our Forest Insect and Disease Laboratory near Delaware, Ohio, we are expanding our pesticide research. As part of a nationwide effort by the Forest Service, we are strengthening our work in systemics and biological control and in control of shade tree insects. The insect vector of Dutch elm disease is receiving major attention in our expanded program.

Mainly as a result of these program changes but partly because of the retirement of one of our key men, several important personnel changes took place during 1964, particularly in our Division of Timber Management and Fire Research. Dr. Arthur G. Chapman, Division Chief, retired after more than 30 years of productive service at the Station. Dr. Stephen G. Boyce became the new Division Chief, leaving the timber management project at Carbondale, Illinois, without a leader. F. Bryan Clark, who had been heading up our work on walnut and other fine hardwoods at Bedford, Indiana, was selected to fill in behind Steve and take charge of the expanded walnut research there. And David T. Funk, formerly located at Athens, Ohio, was appointed to the Project Leader position at Bedford. Benjamin A. Roach, who formerly was in charge of our work in Ohio only, is the Project Leader for the silviculture project at Berea. Malcolm J. Williamson has taken over the new timber-related crops project at Berea.

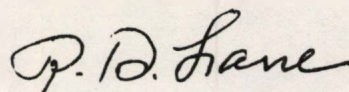
Other new Project Leaders appointed this year are Ronald Z. Whipkey, now in charge of the storm runoff project in our Division of Watershed Management Research, and Hewlette S. Crawford, heading up our forest range management research project in Missouri.

Progress was made in meeting the long-felt need for more adequate laboratory and office facilities at strategic field locations. A new greenhouse-headhouse has been completed adjacent to the Forest Insect and Disease Laboratory at Delaware, Ohio, and is in full operation. Another, but smaller, greenhouse-headhouse is nearing completion at Berea, Kentucky, and soon will be ready for use. This facility is on land leased from Berea College. A recently completed addition to our office building at Salem, Missouri, gives us more office and laboratory space there. This building is now occupied jointly by our research staff and the Salem Ranger District staff. And finally, leases were approved for two tracts of land at Southern Illinois University: one for a laboratory-office building right on the campus

and the other for greenhouse and nursery space on the university farm near Carbondale. Fifty thousand dollars have been appropriated for planning the major on-campus laboratory-office facility.

As you can see, 1964 has been a busy year for us. In addition to carrying on a heavy load of research, we have been organizing and building for what we believe will be an even more productive forestry research program in the future. Your comments and suggestions for improving our work will be most welcome.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "R. D. Lane". The signature is written in a cursive, flowing style with a prominent initial "R".

R. D. LANE
Director

Enclosure

1964 PUBLICATIONS

- * (1) Berry, Frederick H.
WALNUT ANTHRACNOSE. U.S. Dept. Agr. Forest Pest
Leaflet 85, 4 pp., illus.

(Gives the hosts, symptoms, life history, and methods of
control of walnut anthracnose.)

- * (2) Berry, F. H., and Bretz, T. W.
UREA AND OTHER CHEMICALS EFFECTIVE AGAINST COLONIZATION
OF SHORLEAF PINE STUMPS BY FOMES ANNOSUS IN MISSOURI.
Plant Dis. Rptr. 48: 886-887.

(One hour after treatment with one of seven chemicals
stumps were inoculated with F. annosus conidia in
distilled water. In 20 stumps on which Urea was
used there was no infection 3 months later.)

- * (3) Bey, Calvin F.
ADVANCE OAK REPRODUCTION GROWS FASTER AFTER CLEAR-
CUTTING. Jour. Forestry 62: 339-340, illus.

(Describes the regeneration by size and species on two
1-acre oak-hickory plots clearcut 27 years ago.)

- * (4) Boyce, Stephen G.
1963 ANNUAL REPORT, COOPERATIVE FOREST RESEARCH PROGRAM,
SOUTHERN ILLINOIS UNIVERSITY, CENTRAL STATES FOREST
EXPERIMENT STATION. 23 pp., illus.

(A brief history of the cooperative research program
is given. Publications resulting from the 13-year
program are listed.)

- * (5) Boyce, Stephen G., and Kaeiser, Margaret
IMPROVE WOOD QUALITY IN EASTERN COTTONWOOD BY BREEDING AND
SELECTING FOR STRAIGHT, VERTICAL STEMS. South. Lumberman
209(2609): 115-118, illus.

(Describes a study showing that lean and crook in
cottonwood trees cause defects in the lumber produced.)

- (6) Bretz, T. W., and Berry, F. H.
RETENTION OF PATHOGENICITY OF OAK WILT FUNGUS IN CULTURE.
Phytopathology 54: 742.

(Isolates of cultures of oak wilt fungus (*Ceratocystus*
fagacearum) stored for as long as 13 years showed little loss
of virulence when introduced into oak trees of four species.)

- (7) Bretz, T. W., and Berry, F. H.
A TECHNIQUE FOR UTILIZING ADHESIVE FROM CELLOPHANE TAPE
FOR MOUNTING AND PHOTOGRAPHING FUNGI. Plant Dis. Rptr.
48: 514.

(Describes a method for removing the adhesive from
cellophane tape, storing it, and using it later to
adhere fungi to microscope cover slips.)

- * (8) Burns, Denver P.
FORMICIDAE ASSOCIATED WITH THE TULIPTREE SCALE. Ent. Soc.
Amer. Ann. 57(1): 137-139, illus.

(Lists the species of ants observed in association with
the tuliptree scale.)

- * (9) Central States Station
LAND OF HARDWOODS: 1963 ANNUAL REPORT. 19 pp., illus.

(Discusses hardwoods and the Station's current hardwood
forestry research in the central states. Lists 1963
publications.)

- * (10) Central States Station and Kentucky Department of Natural
Resources
PRIMARY WOOD INDUSTRIES OF KENTUCKY--A UTILIZATION SUMMARY
AND DIRECTORY. 66 pp., illus.

(Lists the primary wood-using firms in Kentucky by
counties; gives name, address, species used, buying
radius, mill capacity, and major products.)

- * (11) Clark, F. Bryan
MICRO-ORGANISMS AND SOIL STRUCTURE AFFECT YELLOW-POPLAR
GROWTH. U.S. Forest Serv. Res. Paper CS-9, 12 pp.,
illus.

(Yellow-poplar seedlings grown in old-field and forest
soils show that old-field surface soils are improving
under planted and volunteer trees. Endotrophic
mycorrhiza and good soil structure were found necessary
for rapid yellow-poplar growth.)

- * (12) Clark, F. Bryan, and Boyce, Stephen G.
 YELLOW-POPLAR SEED REMAINS VIABLE IN THE FOREST LITTER.
 Jour. Forestry 62: 564-567, illus.

 (Seed remained viable for four winters in forest litter
 in experimental areas in Illinois and Indiana. There is
 little need to reserve seed trees on areas cut to
 reproduce yellow-poplar.)

- * (13) Cooper, Glenn A.
 A PICNIC TABLE FOR CHILDREN. U.S. Forest Serv. Res.
 Note CS-17, 4 pp., illus.

 (Gives plans and directions for building a 36- by 45-inch
 table, which is both sturdy and attractive, for as
 little as \$6.00. Power shop equipment is required.)

- * (14) DeBald, Paul S., and Gansner, David A.
 TIMBER VOLUME IN ILLINOIS. U.S. Forest Serv. Res. Note
 CS-25, 6 pp., illus.

 (Reports the volume of timber in Illinois by counties
 as found in the 1962 Forest Survey. Compares 1962
 volumes with 1948 volumes.)

- * (15) Dochinger, Leon S.
 EFFECTS OF NUTRITION ON THE CHLOROTIC DWARF DISEASE OF
 EASTERN WHITE PINE. Plant Dis. Rptr. 48: 107-109,
 illus.

 (Application of fertilizer and lime to white pine trees
 infected with chlorotic dwarf influenced growth of the
 diseased trees but did not correct the disease symptoms.
 Application of organic chelates of calcium, iron,
 magnesium, manganese, and zinc did not influence growth
 after 2 years.)

- * (16) Donley, David E.
 MIMOSA WEBWORM AND ITS CONTROL ON INDIVIDUAL HONEYLOCUSTS
 WITH SYSTEMIC INSECTICIDES. Arborist's News 29(3): 17-20,
 illus.

 (One treatment with Bidrin (poured into holes drilled
 below the soil line) controlled mimosa webworm for the
 whole defoliation season on 92 percent of the treated
 trees. Eight percent of the treatments had to be
 repeated.)

- (17) Donley, David E.
MIMOSA WEBWORM AND ITS CONTROL ON INDIVIDUAL HONEYLOCUSTS
WITH SYSTEMIC INSECTICIDES. The Buckeye Nurseryman 7(5):
8-9.

(Reprinted from Arborist's News, March 1964.)
- * (18) Donley, David E.
SEASON-LONG WEBWORM CONTROL FOR HONEY LOCUST. Amer.
Nurseryman 119(11): 7-8, 90, illus.

(Application of Di-Syston or Thimet granules at 8 pounds
per acre in spring or early summer gave season-long
protection from mimosa webworm in honeylocust nurseries.)
- * (19) Ehrenreich, John H., and Ralston, Robert A.
FORAGE AND TIMBER PRODUCTION ALTERNATIVES ON SHALLOW SOILS
IN THE OZARKS. Soc. Amer. Foresters Proc. 1963: 80-83,
illus.

(Costs and probable rates of return are given for oak
management, conversion to pine, and conversion to grass-
land in oak-hickory stands on shallow soils in the
Ozarks.)
- * (20) Essex, Burton L., and Gansner, David A.
FOREST AREA IN ILLINOIS, BY COUNTIES, 1962. U.S. Forest
Serv. Res. Note CS-21, 4 pp., illus.

(Presents newest forest area data for Illinois and
compares current situation with that in 1948.)
- * (21) Farrell, John H.
THE SMALL-WOODLAND OWNER IN THE MISSOURI OZARKS--A CLOSE-
UP. U.S. Forest Serv. Res. Paper CS-10, 15 pp., illus.

(Describes the typical small-private-forest owner in the
Missouri Ozarks, his attitude toward and treatment of his
forest land.)
- * (22) Farrell, John H.
TIMBER INCOME POTENTIAL FROM SMALL FORESTS IN THE MISSOURI
OZARKS. U.S. Forest Serv. Res. Paper CS-11, 74 pp., illus.

(Provides the means by which the individual landowner
in the Missouri Ozarks can answer the question: Will it
pay me to grow timber on my land?)

- * (23) Funk, David T.
 PREMIUM YELLOW-POPLAR SEEDLINGS--8 YEARS AFTER PLANTING.
 U.S. Forest Serv. Res. Note CS-20, 4 pp., illus.

 (Tall yellow-poplar seedlings planted in an old field in southeastern Ohio consistently attained given heights 3 years ahead of short ones for 8 years after planting.)
- * (24) Gansner, David A.
 CONSUMPTION AND HARVEST OF VENEER LOGS IN THE CENTRAL STATES--1963. U.S. Forest Serv. Res. Note CS-26, 8 pp., illus.

 (Gives trends in the use of veneer logs in the central states by state and by species.)
- * (25) Gansner, David A.
 COOPERAGE LOGS AND BOLTS--PRODUCTION AND CONSUMPTION IN THE CENTRAL STATES--1962. U.S. Forest Serv. Res. Note CS-22, 4 pp., illus.

 (Central States stave and heading mills used 22 percent less cooperage logs and bolts in 1962 than they used in 1960.)
- * (26) Gansner, David A.
 PULPWOOD PRODUCTION AND CONSUMPTION IN THE CENTRAL STATES, 1962 AND 1963. U.S. Forest Serv. Res. Note CS-23, 8 pp., illus.

 (1963 production up 12 percent over 1961 with residue consumption accounting for most of the increase.)
- * (27) Gansner, David A., and Knutson, Robert G.
 KENTUCKY PRODUCES 466 MILLION BOARD FEET OF LUMBER IN 1962. U.S. Forest Serv. Res. Note CS-24, 4 pp., illus.

 (Reports production figures gathered from all known active sawmills in Kentucky in 1962.)
- * (28) Gibson, Lester P.
 BIOLOGY AND LIFE HISTORY OF ACORN-INFESTING WEEVILS OF THE GENUS CONOTRACHELUS (COLEOPTERA CURCULIONIDAE). Ent. Soc. Amer. Ann. 57(5): 521-526.

 (The life history and biology of the weevils are reviewed and new data on oviposition, larvae, pupae, and adults presented. Rearing methods for all life stages are described.)

- * (29) Hannah, Peter R., and Kohnke, Helmut
 POT STUDIES INDICATE NEED OF FERTILIZATION IN REFORESTA-
 TION OF ABANDONED CROPLAND IN SOUTHERN INDIANA. 1963
 Ind. Acad. Sci. Proc. 72: 252-256, illus.

 (Study shows that available phosphorus may be one factor
 limiting the growth of hardwoods on abandoned old fields
 in southern Indiana. After phosphorus is applied,
 nitrogen then potassium appear to be limiting factors.)

- * (30) Jensen, Chester E.
 ALGEBRAIC DESCRIPTION OF FORMS IN SPACE. U.S. Forest
 Serv., Cent. States Forest Expt. Sta., Columbus, Ohio,
 57 pp., illus.

 (Gives methods for developing equations describing
 established relations between continuous variables.
 Includes 2-, 3-, and 4-dimensional examples.)

- * (31) Jones, Thomas W.
 EFFECT OF INOCULUM SPORE LOAD AND INOCULATION SITE ON
 INCUBATION PERIOD AND SYMPTOM EXPRESSION IN THE OAK WILT
 DISEASE. Plant Dis. Rptr. 48: 967-970, illus.

 (One of six spore doses of oak wilt fungus conidia was
 inoculated into either the bole or a lateral branch of
 black oak. Trees inoculated in the bole with the
 heaviest spore load had the shortest incubation periods.
 Bole inoculations were more effective in causing
 infection than crown inoculations.)

- (32) Kurmes, Ernest A., and Boyce, Stephen G.
 GENETICALLY PAIRED OAK SEEDLINGS. Jour. Forestry 62:
 637-638, illus.

 (Oak seedlings with identical genetic characteristics
 were obtained by splitting the embryo. The separated
 portions of the embryo with the attached cotyledon
 germinated without stratification and in many cases
 produced seedlings.)

- * (33) Limstrom, G. A.
 REVEGETATION OF OHIO'S STRIP-MINED LAND. Ohio Jour.
 Sci. 64(2): 112-119, illus.

 (Gives the factors to be considered in choosing a species
 for planting on a strip-mine bank or a portion of the
 bank.)

- * (34) Lucas, Edwin L., and Micklewright, James T.
A LUMBER KICKER FOR CONVEYORIZED CUT-OFF SAWS. U.S. Forest
Serv. Res. Note CS-18, 4 pp., illus.
- (A description of and a detailed plan for the lumber
kicker are given. The device can speed up production and
eliminate a safety hazard.)
- (35) Lucas, Edwin L., and Micklewright, James T.
LUMBER KICKER ADDS SAFETY AND SPEED TO CUT-OFF SAWS.
Hitchcock's Woodworking Digest 66(6): 48, illus.
- (Reprint of U.S. Forest Serv. Res. Note CS-18.)
- (36) Marston, Richard B.
CHARACTERISTICS OF A SURFACE MOISTURE NUCLEAR METER.
Bul. Internatl. Assoc. Sci. Hydrol. IX^e Ann. No. 2, 1964:
80-89, illus.
- (Recalibration of a surface-moisture nuclear probe gave a
line of flatter slope than the one supplied by the
manufacturer. The probe had to be placed on a smooth,
even surface. Temperature changes in pure water had no
effect on readings.)
- * (37) Marston, Richard B., and Whipkey, Ronald Z.
NATURAL WATERWORKS. Ohio Woodlands 2(3): 4-5, illus.
- (Explains the advantages of forest land for watershed to
the layman.)
- * (38) May, Robert F.
PREDICTING OUTSLOPES OF SPOIL BANKS. Mining Cong. Jour.
50(4): 104-105, illus.
- (Area of disturbance downslope can be predicted if the
proposed highwall height and the original slope angle are
known. Reprint of Research Note CS-15, 1963.)
- * (39) May, Robert F.
SURFACE-MINE RECLAMATION: CONTINUING RESEARCH CHALLENGE.
Coal Age 69(3): 98-99, 101, illus.
- (Reviews the work being done by the Station on strip-
mine planting.)

- (40) McCurdy, Dwight R.
INCOME FROM RECREATION. Ohio Woodlands 2(1): 4-5,
illus.
- (Describes three Ohio examples of successful woodland
camping and recreation businesses.)
- * (41) The Mead Corporation and Central States Station
THE MEAD CORPORATION EXPERIMENTAL FOREST. 17 pp., illus.
- (Describes the forest and cutting methods used in a
study on an area to be managed for hardwood pulpwood.)
- * (42) Merz, Robert W., and Brakhage, George K.
THE MANAGEMENT OF PIN OAK IN A DUCK SHOOTING AREA. Jour.
Wildlife Mangt. 28: 233-239, illus.
- (Dormant season flooding does not affect the cyclic acorn
crop of pin oak. Clearing of all trees except those
producing acorns helps supplement pin oak mast as food
in duck shooting areas.)
- (43) Minckler, Leon S.
REVIEW OF "PLANT COMMUNITIES OF SOUTHERN ILLINOIS."
Jour. Forestry 62: 885.
- (Book review.)
- * (44) Minckler, Leon S., and Krajicek, John E.
PRUNING PIN OAK: RESULTS AND COSTS. Jour. Forestry 62:
19-22, illus.
- (Shows that crop-tree pruning pin oak can increase
value of crop trees beyond the cost involved.)
- (45) Peters, E. J., and Ehrenreich, J. H.
SPRAY AND SEED TO AID OVERGRAZED FOREST RANGE. Crops
and Soils 16(8): 27.
- (The use of 2,4,5-T and then the seeding of native forage
species is recommended for increasing forage production
in areas of oak-hickory brush in the Ozarks.)

- * (46) Ralston, Robert A., and McGinnes, E. A., Jr.
 SHORLEAF PINE WOOD DENSITY UNAFFECTED BY RING GROWTH.
 South. Lumberman 208(2592): 17-19, illus.

 (Specific gravity was not influenced by diameter growth rates ranging from 8 to 40 rings per inch; specific gravity did increase with age.)

- * (47) Rice, William W.
 KILN-DRY DIMENSION PARTS INSTEAD OF BOARDS--AND SAVE MONEY. South. Lumberman 209(2609): 141-145, illus.

 (Drying costs were 11 percent less when the parts to be used in the final product were dried instead of the boards.)

- (48) Roach, B. A.
 MANAGEMENT OF UPLAND CENTRAL HARDWOODS ON A PULPWOOD ROTATION. Amer. Pulpwood Assoc. Tech. Paper 64-22: (7.01), APA Quarterly: 20-24, illus.

 (Gives the probable economic returns from several alternatives on a woodlot managed for hardwood pulp.)

- * (49) Schroeder, James G.
 A TREE GRADING AND VALUATION SYSTEM FOR YELLOW-POPLAR. Forest Prod. Jour. 14: 521-524, illus.

 (Presents a practical method for finding the amount of lumber, by grades, that can be cut from standing yellow-poplar.)

- * (50) Wheeland, Hoyt A.
 BIBLIOGRAPHY OF TIMBER PRODUCTS HARVESTING IN EASTERN UNITED STATES AND CANADA. U.S. Forest Serv., Cent. States Forest Expt. Sta., Columbus, Ohio, 27 pp.

 (Lists all known publications dealing with timber harvesting equipment and techniques.)

- (51) White, Donald P., and Finn, Raymond F.
 FROST DAMAGE IN A TULIP POPLAR PLANTATION AS RELATED TO FOLIAR POTASSIUM CONTENT. Mich. Acad. Sci., Arts, and Letters Papers 49: 75-80, illus.

 (A late-spring frost killed yellow-poplar leaves in a plantation on the Michigan State University's Russ Forest. Leaf mortality per tree ranged from 5 to 100 percent. Leaf mortality was lowest on trees fertilized with potash.)

- * (52) Whitten, Russell R., and Swingle, Roger U.
 THE DUTCH ELM DISEASE AND ITS CONTROL. U.S. Dept.
 Agr., Agr. Inform. Bul. No. 193, revised March 1964,
 12 pp., illus.

 (Summarizes our present knowledge about Dutch elm disease
 and its control. Supersedes Leaflet No. 329, "Control
 of Dutch Elm Disease and Elm Phloem Necrosis," issued
 in December 1958.)

- * (53) Williams, Robert D.
 RELEASE ACCELERATES HEIGHT GROWTH OF YELLOW-POPLAR
 SEEDLINGS. Jour. Forestry 62: 95-97, illus.

 (Yellow-poplar seedlings released from a residual cover
 of 40 square feet per acre basal area were three times
 as tall as seedlings not released 5 years later.)

- (54) Williamson, Malcolm J.
 BURNING DOES NOT CONTROL HARDWOODS. Forest Farmer 23(13):
 9, 18, illus.

 (Reprint of U.S. Forest Serv. Res. Note CS-19.)

- * (55) Williamson, Malcolm J.
 BURNING DOES NOT CONTROL YOUNG HARDWOODS ON SHORTLEAF
 PINE SITES IN THE CUMBERLAND PLATEAU. U.S. Forest
 Serv. Res. Note CS-19, 4 pp., illus.

 (After successive burns in 1959 and 1960 on an area
 with a shortleaf pine seed-tree overstory and a hardwood
 understory on the Cumberland Plateau, the number of
 hardwood stems per acre increased from 5,400 to 14,800
 because of sprouting.)

- (56) Wray, Robert D.
 RESEARCHLIGHT ON YOUR WOODLAND. Ohio Woodlands 1(4): 7.

 (Summarizes the results of a survey of ownership patterns
 in Ohio woodlots and the attitudes of the owners.)

- (57) Wray, Robert D.
 RESEARCHLIGHT ON YOUR WOODLAND. Ohio Woodlands 2(1): 7,
 illus.

 (Gives a popular interpretation of a study of subsurface
 stormflow.)

- (58) Wray, Robert D.
RESEARCHLIGHT ON YOUR WOODLAND. Ohio Woodlands (2): 7,
illus.

(Discusses the search for new uses for low-grade
hardwood lumber at the Wood Products Pilot Plant,
Carbondale, Illinois.)

- (59) Wray, Robert D.
RESEARCHLIGHT ON YOUR WOODLAND. Ohio Woodlands 2(3): 12,
illus.

(Introduces Dr. Stephen G. Boyce, new Division Chief in
Timber Management and Fire Research at the Central
States.)